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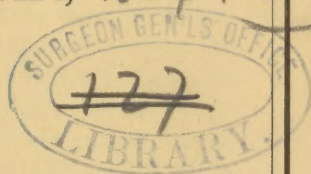
THE PATHOLOGY AND TREATMENT OF EPULIS.

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BY

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THE PATHOLOGY AND TREATMENT OF EPULIS.

It gives me great pleasure to meet with you on this your tenth anniversary as a society, and I take advantage of the opportunity to congratulate you upon the success attained by this organization, as well as the high rank your profession occupies in the esteem of the people here and abroad. You may well be proud of the reputation and distinction achieved by your profession. The fame of American dentistry is world-wide. American dentists are sought and patronized everywhere. Your profession furnishes a fertile field for the exercise of ingenuity and the application of mechanical skill, which constitute such a prominent and characteristic feature of our people.

When, a few weeks ago, I was honored by an invitation to appear before you this evening, I fully realized the responsibility I was assuming in accepting it. It is no easy task for an outsider, although belonging to a kindred profession, to come before such an intelligent audience and offer something that shall be of sufficient value and interest to merit its attention. After mature reflection, I have concluded to call your attention to a disease which occupies the boundary-line between the dentist and surgeon,—an affection which, for its successful management, requires the services of both. I allude to Epulis.

The term epulis is derived from two Greek words, signifying “upon the gums.” The ancients applied this word to designate a variety of tumors found in and underneath the gums. The designation originated at an early period in the history of medicine, when the locality and external appearances of a disease received more attention than its pathology. Like many other vague and indefinite terms, it has been handed down to us from the distant past through the current of medical literature, and at the present time occupies still a position, although in a modified form, in most of our text-books.

In speaking of malignant diseases of the bones, Billroth says,*

* General Surgical Pathology and Therapeutics, p. 602. New York, 1872.

"Some also call epithelial cancer epulis; it is well either not to use such terms, or to restrict them by certain adjectives, as sarcomatous, fibrous, carcinomatous epulis, etc."

This affection is no longer considered a primary disease of the gums; it includes no longer the variety of inflammatory, hypertrophic and malignant processes which originate in the gums or the neighboring tissues. The term epulis is still giving rise to considerable confusion, as authors continue to apply it to different pathological conditions. As used in the present sense, we understand by it a fibro-plastic tumor, which originates in the endosteum or periosteum of the alveolar process; which manifests a strong disposition to return if not thoroughly removed; which never heals spontaneously, and but seldom invades the system by general infection. Epuloid growths may therefore be appropriately classified under the head of semi-malignant,—a class of tumors prone to local but not to general infection.

Clinical History.—The clinical history of all epuloid growths demonstrates the fact that they have a certain relation to the teeth, in the proximity of which they always take their origin. These tumors never occur in jaws which have no teeth, nor in parts of jaws where the teeth have long been removed.

Mr. Salter gives a case which at first sight seemed an exception to this rule: "One of the most severe examples of this malady which I have seen consisted of a bilobate mass, the size of a walnut, extending on the right side of the lower jaw, from the dens sapientiæ to the canine teeth, the four intermediate teeth having been removed. Its removal on this occasion disclosed the remains of one fang of the first molar tooth in its very axis. This was extracted, and the disease did not again make its appearance."*

Infants and the aged, with edentulous and atrophied jaws, are exempt. The youngest patient that has come under my observation was eighteen, and the oldest fifty-five years of age. The disease is most frequently met with in persons from twenty to fifty years of age. In a table of 28 cases observed in the London hospitals, the youngest patient was a boy of nine, whilst the oldest was a woman of seventy-three. Five were under the age of twenty, eight between the ages of twenty and thirty, seven between thirty and forty, three between forty and fifty, two between fifty and sixty, and three above sixty. The average age of the whole number was thirty-three.†

Females suffer more frequently from this disease than males, the relative number among my cases being in the ratio of 3 to 1. This

* Holmes's System of Surgery, vol. iv. p. 340. New York, 1875.

† Heath, Injuries and Diseases of the Jaws, p. 204. London, 1872.

disproportion is explained by the well-known fact that females suffer more frequently from diseased teeth than males.

A discrepancy of opinion prevails in regard to the relative frequency with which the lower and upper jaws are affected. Erichsen has met with it more frequently in the lower jaw, while Pollock's experience has been the reverse, having had twice as many cases where the upper jaw was the seat of disease as where the lower was affected. I have seen it more frequently in the lower than in the upper jaw.

Inasmuch as the anatomical structures surrounding the roots of the teeth are the same in both jaws, we can safely assume that were all the cases tabulated, there would be no great disproportion in regard to the frequency with which these bones are affected. The difference in the statistics of individuals must be considered as accidental. The disease affects more frequently the sockets of the molars than the incisors and canines, and is attached more frequently to the outer than the inner alveolar process.

The starting-point of an epulis is usually in one of the alveolar cavities; as a rule only one tumor exists. As the neoplastic formation increases in size, its pressure soon produces displacement of its surrounding structures. One of the first results of this pressure is a loosening of the teeth around which the growth develops itself, and a dilatation of the alveolar spaces. The tumor projects in the direction which offers the least amount of resistance, which is usually between a tooth and the outer alveolus, or between two adjacent teeth.

The progress of the disease is slow and painless. Probably the first thing the patient will notice will be a preternatural prominence of one or more teeth, which eventually become loose; and this fact induces the patient to consult a dentist for the purpose of having them extracted. At this stage, besides the loosening of the teeth, a firm fibrous growth is found around the base of the tooth first affected, and usually more prominent between, and to the outer side of, the teeth. The mucous membrane covering the tumor presents a natural appearance, and rarely is the seat of ulceration, unless the tumor has acquired a large size, or its surface has been subjected to mechanical injury. If the base of the tumor remains circumscribed, the disease manifesting no tendency to invade the adjacent alveoli, then the growth projects into the cavity of the mouth and assumes a pedunculated or polypoid shape. The shape of the tumor is determined, to a certain degree, by the extent of its base, and the pressure to which it has been exposed on part of the surfaces with which it comes in contact. The consistence of the tumor is variable, and depends upon the abundance or paucity of its fibroid elements. The rapidity

of its growth depends, in part, upon the character of the cells which constitute its principal bulk. The more closely the tumor resembles a purely fibroid structure the firmer its consistence and the slower its growth; if, on the other hand, the myeloid cells preponderate, then it is very vascular, soft, grows rapidly, and is more prone to ulcerative destruction.

As the tumor increases in size it becomes more or less lobulated, the number and shape of the lobes depending upon the resistance with which it meets and the arrangement of the fibrous stroma in its interior. As long as its investing membrane remains intact there is no tenderness, and the surface does not bleed on being touched; when ulceration takes place the abraded surface often becomes tender, and the source of frequent debilitating hemorrhages. The chief inconvenience arises from its presence when its size is sufficient to interfere with the functions of the mouth, speech, mastication, and deglutition. If the tumor is permitted to grow to a large size it will produce external deformity of the face.

Mr. Liston removed an enormous tumor of this kind from the upper jaw of Mary Griffiths, in October, 1836.* The disease had existed for eight years. An operation was performed when the tumor was of small size, but the disease returned, owing to an imperfect removal of the morbid product. The tumor belonged to the fibroid variety. The growth primarily took its origin from the sockets of the incisor and canine teeth of the left side of the upper jaw. It early protruded from the mouth, pushing the lips and cheek before it. It filled the cavity of the mouth anteriorly, and formed a large tumor in front of the face, and was the cause of great inconvenience and suffering. Ulcerations had taken place over some parts of the surface, but its other qualities indicated a benign nature. An operation performed for its removal restored the symmetry of the face, and was followed by complete and permanent recovery.

Dr. Kinloch, of Charleston, S. C., performed a similar operation in 1869. The patient was a negress, aged twenty-five, who suffered from a tumor originating from the same locality, and having attained about the same dimensions. It had originated in the alveolus, but had involved a considerable portion of the superior maxillary bone. The mass, after removal, weighed nearly two pounds, and the patient made a good recovery.

It is difficult to estimate the natural duration of this disease, as the patients suffering from it readily submit to an operation before it endangers life by interfering with essential functions. In the table of 28 cases previously quoted, the longest period mentioned was

* Heath, *op. cit.*

twenty years, in a patient of sixty, and the shortest three months, in a patient of fifty.

The disease remains local, and destroys life only if it is permitted to attain sufficient size to interfere mechanically with alimentation or respiration.

Causes.—Our knowledge concerning the essential cause of epulis is absolutely *nil*. The disease does not appear to be hereditary. We are ignorant regarding any special general condition favorable to its development. There is no evidence of the disease being the result, or a manifestation of, a general condition or dyscrasia.

Prof. Rust believed that these growths, in some instances, are caused by a general dyscrasia, and in support of this assertion he relates a very singular case that came under his observation.* A woman suffered from a sarcomatous epulis during her pregnancy. The tumor was attached to the alveolar processes of the upper jaw; it presented a reddish-blue appearance, and at times gave rise to copious hemorrhage. Repeated fruitless attempts were made to destroy it by means of the ligature and caustics. Soon after delivery it disappeared spontaneously. It reappeared regularly during four successive pregnancies and disappeared promptly after each delivery, without treatment, so that the woman began to look upon its appearance as the most reliable indication of her condition.

The immediate or exciting cause is in many instances referable directly to a local irritant, as a diseased tooth. When the jaw is devoid of teeth at the site of disease it may be safely assumed that a root or a loose spicula of bone is buried somewhere in the interior of the mass. Incrustation of tartar around the base of the teeth has undoubtedly in some instances acted as a cause, and it is only reasonable to presume that the prolonged irritation incidental to the second dentition and the appearance of the last molars has been instrumental in originating the morbid process. It is a well-known fact in pathology that any long-continued irritation may so alter the nutrition of normal structures and benign growths as to impart to them a semi-malignant or malignant type.

Mr. Stanley,† in speaking of malignant disease of the periosteum, says, "The grounds upon which I have considered this to be a disease of the periosteum are, that in some instances the fungous excrescence appeared to have arisen directly from the periosteum, altered in structure by inflammation, that is, thickened and softened, and but loosely adherent to the bone; further, that these alterations in

* Aufsätze, u. Abhandlungen aus dem Gebiete der Medizin, Chirurgie, etc. Berlin, 1834. Band i. p. 263.

† A Treatise on Diseases of the Bones, p. 281. Philadelphia, 1849.

the periosteum have been observed to extend beyond the limits of the fungus, and indeed far beyond the existence of any change in the skin indicating unsoundness of the subjacent parts. Thus, in one case where the fungus was confined to the lower third of the front of the leg, the periosteum was found preternaturally vascular, thick, soft, and pulpy over the whole of the tibia and upon the fibula also. It seemed, therefore, from these observations, that a diseased state of the periosteum had preceded the growth of the fungous excrescence on it."

Traumatic injury of the teeth or alveolar processes, the excessive use of phosphorus and mercury, deserve to be enumerated as possible causes; in fact, I believe that any cause or causes which produce a prolonged and continuous congestion of such vascular membranes as the endosteum and periosteum of the alveolar plates may eventually engender this disease.

Pathology.—Epuloid tumors, as described above, belong to a class of tumors which have been described under different names as fibro-plastic by Lebert, sarcoma by Virchow, and myeloid by Paget.* The term fibro-plastic defines their structure and clinical behavior better than any other which has been proposed, and should be retained until a more accurate knowledge of their essential nature warrants us in adopting something better. On section, the tumor appears smooth, and presents usually spots of discoloration varying from a bright pink to a dark brown. This mingling of colors is one of its characteristic properties. In structure it is composed of spindle-shaped fibro-cells, and larger polynucleated and nucleolated cells. (Riesenzellen.) The spindle-shaped or caudate cells contain single nuclei and nucleoli; the large cells are irregular, round, oval, or flask-shaped, measuring from $\frac{1}{800}$ to $\frac{1}{1000}$ of an inch in diameter, and contain from two to ten distinct nuclei with nucleoli. The fibro-cells consist of an abnormal increase of the fibrous elements of the organs from which the tumor made its starting-point; while the larger or myeloid cells, lodged in varying proportions in its meshes, comprise one of its products, and impart to it its semi-malignant properties.

When a tumor is largely composed of these giant-cells it grows rapidly, is soft and vascular, and very prone to infiltrate and infect the tissues around it. The neoplastic deposit penetrates the bones by dilating the Haversian canals and following the fibrous tissue lining these channels.

Mr. Paget says of these tumors, "In all these characters of connection the fibrous tumors on the exterior of the jaws and about other bones resemble outgrowths; they are as if some limited por-

* Paget's Surgical Pathology, p. 544. Philadelphia, 1870.

tion of the periosteum had grown into a tumor overlying or surrounding the bone. The character of outgrowth is indeed generally recognized in the epulis, or tumor of the gums and alveoli, but I believe Mr. Hawkins is quite right in the view which he has expressed that the fibrous epulis should be regarded as a tumor growing like most of the fibrous tumors from the bone and periosteum, and continuous with them. That it is prominent and lobed is because it grows into the open cavity of the mouth, and it resembles gum only because it carries with it and involves the natural substance of the gum."*

The mucous membrane covering the tumor is intimately connected with its substance, presenting no distinct boundary-line. The tumor is connected primarily with the endosteum or periosteum of the alveolar processes, and Otto Weber† has traced its origin to the pulp of a tooth. The bone to which the tumor is attached becomes very vascular and osteo-porotic, portions of its substance being absorbed, and the space appropriated by the neoplasm. Deposits of bone are frequently found in the interior of these tumors. It has been a question among pathologists to determine whether the bone thus found is derived from the alveolar processes, or whether it originates *de novo*,—a product of the tissues.

Luecke‡ believes in the osteo-genetic functions of the neoplasm, when he says that the main feature of a periosteal sarcoma does not consist in this or that form of cells, but that it depends upon its proneness to produce bone or a substance resembling bone. Mr. Tomes,§ on the other hand, takes it for granted that the bones found in these tumors are detached pieces from the jaw, and during their growth are imbedded in their substance. He thinks that its microscopic character "fully justified the assumption that it had at one time formed a portion of the subjacent alveolus, and that its detachment had been effected by absorption; and further, that when so detached it had formed a source of irritation, and thus led to the development of the epulis."

Stanley, Jonathan Hutchinson, Heath, Hawkins, and De Morgan have each removed epuloid growths of large size, with bony deposits at a distance from their point of origin, so that there can be no further doubt that ossification had taken place in the tumor itself. These tumors possess a great amount of vitality and power of resistance. They are seldom (especially the fibroid variety) the seat of ulcera-

* Opus cit., p. 488.

† Verletz. u. Chir. Krankh. des Gesichts. Pitha und Billroth Chirurg., p. 270.

‡ Die Lehre von den Geschwuelsten, p. 179, Pitha und Billroth.

§ Dental Surgery, p. 521.

tion, and when this occurrence takes place it does so only when the tumor has attained a large size, or as the result of extraneous causes.

Enlargement of the lymphatic glands does not belong to the clinical history of epulis. In the few cases where it was alleged that the disease became general, the secondary deposits were found, not in the lymphatics, but along the course of the blood-vessels.

Diagnosis.—The clinical history and the physical appearances of the tumor furnish the most important facts in arriving at a correct diagnosis. Should any doubt remain, it may be effectually dispelled by a microscopical examination of small particles taken from the interior of the tumor. The absence of pain or tenderness, the slow growth, the firmness of the tumor and its attachment within or in the immediate vicinity of an alveolus, are conditions which belong to the history of every case of epulis. Hypertrophy of the gum is an exceedingly rare affection, and the morbid process never extends beyond the tissues primarily involved. Granulations or polypoid growths from the cavity of a tooth or an alveolus are soft, bleed easily on being touched, and are therefore not liable to be mistaken for an epulis.

Parulis, or abscess of the gum, is an acute affection, and always terminates in suppuration. In scorbutus we have an inflammation of the gums and the alveolar contents, which, if limited, might resemble the disease under consideration; but the disease is usually distributed over a larger surface, and the history of the case furnishes evidence of the presence of causes which have given rise to a general dyscrasia. Cartilaginous and osseous tumors of the alveolar processes present such characteristic features as to offer no difficulties in view of a differential diagnosis. Epithelial cancer is not a primary affection of an alveolus, but affects this locality by extension, usually from the lips. This affection attacks persons only advanced in years. It does not give rise to a tumor, properly speaking, but falls an early prey to destructive ulceration. Lymphatic infection is a constant occurrence in cancer, but is seldom or never present in uncomplicated cases of epulis.

Prognosis.—The repullulating disposition of epulis constitutes its most formidable feature. This affection, as a rule, comes under treatment earlier than most any other variety of tumors on account of its location and the inconvenience it occasions. Its slow growth and its local nature render it a favorable object for operative procedure. Prof. Gross,* who believes that this disease may, under certain favorable circumstances, assume the most malignant form, estimates the time when it will prove fatal at from one to three years. When the

* System of Surgery, vol. ii. p. 432.

disease is permitted to run its natural course, it destroys life in several ways. The size of the tumor may interfere with mastication and deglutition, and the patient dies of inanition; the tumor may encroach upon the larynx and interfere with respiration, and death results from asphyxia; the tumor may ulcerate, and repeated hemorrhages may result in death from exhaustion; the ulceration may become extensive, the source of septic infection from the products of putrefaction, and life is terminated by septicæmia or pyo-septicæmia; or, in exceptional cases, if the disease is not eradicated by a thorough removal, it may assume a malignant type and prove fatal by secondary deposits in the course of the blood-vessels.

Treatment.—The ancients understood well the recurrent nature of epulis, and consequently resorted to effective measures to accomplish its early and thorough destruction. *Ætius* recommended the application of alum, verdigris, etc., and, if these failed to produce the desired result, he advised extirpation with the knife. *Haly Abbas* and *Celsus* recommended excision; *Albucasis* directed that the tumor be cut out with forceps and scalpel, and then to apply styptic powders to the part, and, in case the tumor reappeared, to resort to the actual cautery; *Paulus Æginatus* came to the conclusion that no permanent cure could be effected without the employment of the *ferrum candens*. All recent authorities agree that a thorough removal of the diseased tissues affords the only security against recidivation. *Mr. Stanley* says,* “In the treatment there is but one consideration involved,—the necessity of thoroughly removing the diseased parts with the tissues to which they have acquired attachment; and, of course, this can be done far more satisfactorily when the disease is of small extent, and limited to its original seat. Therefore, it is important that the disease be recognized before it has crept, as it is apt to do, irregularly and indefinitely into the surrounding tissues.”

The object of treatment—the removal of the growth—may be reached in different ways: 1, by excision; 2, caustics; 3, actual cautery. To insure success it is almost always necessary to remove that part of the alveolar process from which the growth springs; hence, excision has the first claim in selecting our method of operation. It may be followed with profit by the actual cautery for the double purpose of arresting hemorrhage and destroying any particles of morbid tissue that may have evaded the cutting instruments. Caustics are not sufficiently reliable to successfully cope with such an insidious and obstinate disease. Only a few authorities recommend their use in mild cases.

Prof. Gross,† in speaking of the treatment of epulis, with special

* *Opus cit.*

† *Opus cit.*, p. 432.

reference to its occurrence in the lower jaw, insists that the incision should extend not only through the sound tissue, but, to make sure of complete removal, recommends excision of the entire thickness of the bone: "I am satisfied that it is worse than useless to temporize with such a malady. The only way is to deal it at once an effectual blow by sawing out a piece of the jaw embracing its entire thickness, and reaching some distance beyond the limits of the morbid mass. I have never known a case in which any other procedure did the least good. In treating epulis we should not lose sight of the fact that it is an affection, not so much of the gums as of the jaw-bone, and therefore anything short of removal of this, at the site of the disease, is an absurdity." In opposition to the treatment given by this eminent surgeon, Mr. Heath says,* "Under no circumstances, except when the growth is of a malignant character, can it be necessary, I believe, to cut through the whole thickness of the lower jaw, since it has been shown repeatedly that common epulis never involves the base of the bone, and the contour of the face depends so much upon its preservation that it should not be interfered with."

Mr. Salter sustains the views expressed by Mr. Heath when he refers to this part of the treatment, as follows:† "It will never, I believe, be necessary to go far below the limits of the alveolar process; for it is with the alveolar bone that the disease is essentially connected. In the lower jaw I would urge the necessity of never cutting through the entire bone, as the breaking of the maxillary arch most seriously interferes with the position of the remaining portions of the bone, and this disturbs the normal apposition of the teeth in the two jaws relatively." This advice should be heeded, and even if the disease be extensive, a narrow bridge of healthy bone is usually found at the base of the lower jaw which should be carefully preserved in order to maintain the proper anatomical relation of the parts. As the disease almost always originates from one of the surfaces of the alveolar bone, the latter must be removed with the growth to prevent with certainty a relapse. The neoplastic deposit is very apt to infiltrate the whole depth of the alveoli, hence the entire length of the alveolar process should be removed. In a few instances, arrest of further development and even complete recovery has been attributed to the physiological atrophy of the alveolar processes following the extraction of teeth.

Such a favorable termination from this measure should, however, not be expected or relied upon. All expectative treatment must give

* Opus cit., p. 210.

† Holmes's System of Surgery, vol. iv. p. 342.

way to a radical operation as soon as a positive diagnosis is made. The tooth of the socket, from which the tumor took its origin, as well as the adjacent tooth on each side, must be sacrificed; after the required number of teeth have been extracted, the soundness of the jaw-bone should be examined to determine the direction of the incision and the amount of bone to be removed. This examination is best made with a small perforator or drill, which is made to penetrate the bone at different points to ascertain its density; the affected portion is soft and porous from the neoplastic infiltration, while the healthy jaw-bone may be known by its ivory-like hardness.

Having ascertained the limits of the disease, two vertical incisions are made on the inner and outer side of the jaw, one on each side of the diseased mass, and at a safe distance from its border; these incisions are carried from the margins of the alveolar process to its base, or further in case the disease has penetrated into the interior of the jaw. These vertical incisions, which should extend to the bone, are connected by a horizontal incision. The incisions in the soft parts mark the line of application for the bone-cutting instruments, and guard against laceration of the periosteum. The vertical sections in the bone are made with a small saw, and the horizontal or connecting cut with a Hey's saw or Liston's cross-cutting bone-forceps. After the tumor has been removed, the cut surfaces of the jaw should be carefully examined, and any suspicious portions of bone removed with a gouge or bur-drill; the surface can be subsequently cauterized with one of the points of Paquelin's thermo-cauterium.

When the tumor involves the body of the lower jaw, and we desire to leave a narrow bridge of bone to preserve the maxillary arch, and upon the preservation of which too much stress cannot be placed, then the use of White's surgical engine offers advantages which cannot be overestimated. Any one who has undertaken to perform this operation with an ordinary Hey's saw must have been fully convinced of its difficulties.

During one of his recent clinics, Prof. J. E. Garretson* called the attention of the class in forcible language to the superiority of the surgical engine over all other instruments in operations involving the maxillary bones, and illustrated his remarks by removing a large sarcoma from the lower jaw, which extended from the lateral incisor to the ramus. After exposing the tumor by an incision through the center of the lower lip and along the lower margin of the jaw to its angle, and arresting the hemorrhage, he made a series of punctures with a spear-drill along the track of the proposed cut and completed the section with a small revolving saw, making a rapid and clear

* DENTAL COSMOS, July, 1880.

section of the bone. This instrument is one of the most useful and practical innovations in surgery, and will soon become as indispensable to the surgeon as it now is to the dentist.

Most of these epuloid tumors can be removed through the mouth without incising the face; but when they have attained a large size, and this step becomes inevitable, then the suggestion and practice of Sir William Fergusson* cannot be too closely imitated, viz., to restrict the incision to the middle lip, which will ordinarily suffice, or, if not, in case the upper jaw is operated upon, to extend it into the nostril of the affected side; by using retractors sufficient room will be gained to render any incision at the angle of the mouth superfluous. By adopting this or similar methods, unnecessary and unseemly scars are prevented.

Should the location of the tumor require a still more extensive incision for its removal, then a semilunar incision is made through the face with the concavity downwards, as practiced by Von Langenbeck; it is carried from the ala of the nose to the orifice of the ductus Stenonianus, and from here upwards and outwards towards the malar bone. Through this incision any part of the alveolar processes can be reached, while at the same time the cicatrix following the operation does not disfigure the face to the extent it would have done had the incision been carried from the angle of the mouth.

If the disease has penetrated through the alveoli into the antrum, it will become necessary to resect the greater part or the whole of the superior maxillary bone. To expose the lower jaw, the incision is made through the center of the lower lip, and along the lower margin of the bone to its angle.

By a very simple procedure Garretson secures the location of the cicatrix below the jaw so as to hide it from view. He marks the line of incision with a pencil, below the jaw, on the side of the neck; then, by flexing the head towards that side, brings the line over the jaw, when the incision is made down to the bone, which affords protection to the deeply located important organs of the neck.

All important vessels are ligated as soon as divided. The wound should be united with carbolized silk sutures, embracing the whole thickness of the lips and cheek, and tightened after all hemorrhage has ceased. Wounds of the face unite in a very short time, and it is important to remove the sutures as soon as union has taken place, which often is complete on the third day. To prevent separation of the recently united tissues, it is advisable to support the external parts with strips of adhesive plaster, smoothly and well applied. The action of adhesive plaster is enhanced by applying collodium along its edges.

* Lectures on Progress of Surgery, p. 239.

After all operations within the cavity of the mouth it is important to prevent fœtor and to guard against septicæmia from decomposed products of the wound, by the frequent use of antiseptic gargles, of which a solution of boracic acid and biborate of soda is one of the most pleasant and efficient. After the parts have well healed, the requisite number of teeth are inserted on a plate carefully made to fill the gap, and thus restore the symmetry of the mouth and the functions of mastication and speech.

From this imperfect sketch it will be seen that, for the purpose of recognition and successful management of this affection, the dentist and surgeon must go hand in hand. In the majority of cases the dentist is first consulted, and he should therefore possess the requisite amount of diagnostic knowledge to apprehend its nature, and then undertake or recommend the necessary operative treatment.

After the removal of the tumor the services of the dentist are again required with a view to efface the mutilation inflicted by the surgeon in his attempt to eradicate a disease which slowly but surely destroys the life of the patient, unless stayed by the intervention of the art of surgery.

